

**ADMINISTRATIVE-INTERNAL USE** LY

DATA CENTER OPERATIONS BRANCH

NDS OPERATIONS PROCEDURE MANUAL  
NO. P-D004

APPLICATIONS SOFTWARE  
13 April 1983

DIRAZM PROGRAM

SYMBOLIC TITLE: DIRAZM  
PROGRAMMER:

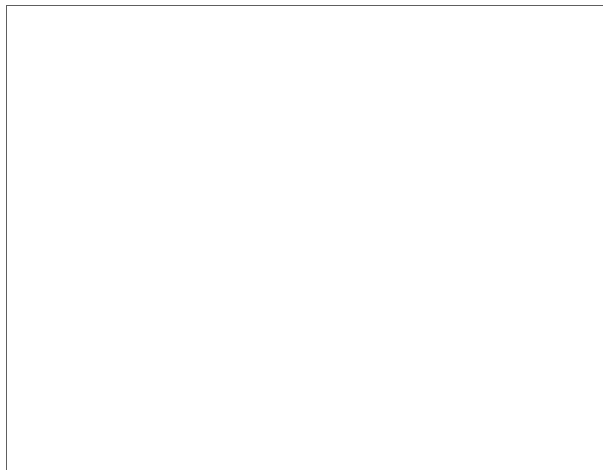
STAT

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### APPROVALS

This operations manual has been reviewed and approved by the following persons:



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4 Feb 82  
(date)

2/5/82  
(date)

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## CONTENTS

	<u>Page</u>
SUMMARY	1
INPUT	1
DATA CARDS	1
ELLIPSOID CARD	2
LATITUDE CARD	2
LONGITUDE CARD	3
AZIMUTH CARD	3
UNIT OF DISTANCE CARD	4
DISTANCE CARD	4
ARRANGING YOUR CARD DECK	5
THE OUTPUT	6
SAMPLE CARD DECK	7

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## 1. SUMMARY

Given a pair of points (point 1 and point 2) and given the geodetic latitude and longitude of point 1, the azimuth from point 1 to point 2, and the distance from point 1 to point 2, DIRAZM computes and prints--

- a. The geodetic latitude and longitude of point 2.
- b. The azimuth from point 2 to point 1.

The program can make computations on more than one pair of points.

## 2. INPUT

The following items must be input to DIRAZM for each pair of points.

- a. Ellipsoid - Eight ellipsoids are available. You will input the mnemonic for the ellipsoid you have chosen. The ellipsoid must be specified for each pair of points. The ellipsoids are listed below:

WGS-72  
WGS-66  
WGS-60  
KVV  
Bessel  
Clarke  
International  
AMS

- b. Latitude and longitude of point 1. You must input degrees and direction; you may also input minutes and seconds. Decimal portions of degrees, minutes and seconds may be input if known.
- c. Units of distance - the distance between points 1 and 2 may be measured in feet, meters, statutory miles, or nautical miles.
- d. Azimuth from point 1 to point 2. You must input degrees; you may also input minutes and seconds.

## 3. DATA CARDS

You will need six data cards for each pair of points. One data card will indicate the ellipsoid. The remaining five cards will show the latitude of point 1, the longitude of point 1, the azimuth from point 1 to point 2, the unit of distance used in measuring the distance between the two points, and the distance between point 1 and point 2.

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Begin in column one and punch the mnemonic for the ellipsoid you are using. You will punch one of the following:

WGS-72  
WGS-66  
WGS-60  
KVV  
Bessel  
Clarke  
International  
AMS

A sample card appears below.

452-72

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79

This card indicates the latitude of a point. You will need a latitude card for point 1 and one for point 2.

```
Col 1      X if dir is North
Col 2      X if dir is South
Col 3      Degrees
Col 8      Minutes
Col 13     Seconds
```

4 20.00 0.0 0.0

[illegible]





## 4. ARRANGING YOUR CARD DECK

Your card deck should be arranged as shown below.

```

1: @RUN      DIRAZM,S33741016/I# ANCH,XOT
2: @SYM,D POINTS
3: @ASG,A   XOT*P#ABS.
4: @COPY,A  XOT*P#ABS.DIRAZM,TP#S.
5: @FREE,R  XOT*P#ABS.
6: @XOT     DIRAZM
7: WGS-72
8: LATITUDE PARAMETER CARD
9: LONGITUDE PARAMETER CARD
10: AZIMUTH PARAMETER CARD
11: UNIT OF MEASUREMENT PARAMETER CARD
12: DISTANCE BETWEEN POINTS PARAMETER CARD
13: EOT*
14: @BRKPT POINTS
15: @FIN

```

Other sets of data cards would be inserted after card #12 if there were more than one set of input points.



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## 5. THE OUTPUT

DIRAZM outputs a printer listing. An example is shown below.

```

9: @FREE-R XOT*WSABS.
9: READY
10: @XQT DIRAZM
11: ELLIPSOID WGS-72
12: P1-P2 099.00 09.0 40.07
13: 00000 25.11 052STAT FILES
14: LATITUDE1 X 20.00 0.0 0.0
15: LONGITUDE1 X 040.00 0.0 0.0
16: P2-P1 269.99999619
17: LATITUDE2 X 20.000 01.000 07.56S
18: LONGITUDE2 X 045.000 00.000 07.56S
19:
20:
21: @BRKP 1 PRINTS

```

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```
"FIN  
BERKPT PRINT$  
EOT*  
00000325,11052  
STAT MILES  
089.00 08.0 40.07  
X 040.00 0.0 0.0  
X 20.00 0.0 0.0  
AGS-72  
"XOT DIRAZM  
"FREE,R XOT*P$ABS.  
"COPY,A XOT*P$ABS.DIRAZM,TPF$.  
"ASG,A XOT*P$ABS.  
"SYM,D PRINT$
```

1 RUN DIRAZH, S33741-0167 IVANCH, ROT

0000 0000 0000

U U O O 19 0 0

[illegible]